Development of Sustainable, Smart, Secure and Safe Society
by Comprehensive Research and Development of Gallium Nitride (GaN)
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Why GaN?

- GaN-based Power transistors
  - Size: ~1/10
  - Loss: ~1/10
- GaN power devices are: Small, Compact, Light, Efficient, Stable, Fast.

Energy savings by GaN

- In Japan, we can reduce total electricity consumption by about 7% (=1,000,000,000,000 JPY) by 2020.

Role of Power Devices

- We can reduce total electricity consumption by 9.8% by replacing Si-based transistors to GaN-based transistors!

How to realize zero emission toward 2°C/1.5°C targets?

- 80% reduction of CO₂ emission by 2050
- By 2050: 0.74x + 1.5x + 0.3x = 0.2

Kaya identity

- F = P / C / E / G
- "F" is global CO₂ emissions from human sources
- "P" is global population
- "E" is global GDP
- "G" is global energy consumption
- "CPG" is the carbon footprint of energy

Total loss of power conversion system

- We need high-speed efficient and intelligent power conditioner.

Sustainable, smart, secure and safe society by GaN

- Intelligent power supply network / Internet of Energy (IoE)
- Optimized energy management by AI is possible by high-speed intelligent power conditioner.

Next generation mobility/logistic

- Air commuting system
- Air taxi
- Drone for logistic

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